

What is claimed is:

1. An apparatus, comprising a sensor and a bundle of optical fibers having first and second ends; wherein:

the bundle of optical fibers at the first end extends in a first fiber direction and defines a first section plane that is normal to the first fiber direction;

the first end defines a first end plane that is obliquely oriented with respect to the first section plane;

the bundle of optical fibers at the second end extends in a second fiber direction and defines a second section plane that is normal to the second fiber direction;

the second end defines a second end plane that is obliquely oriented with respect to the second section plane; and

the sensor is disposed in a confronting relation with the second end.

2. The apparatus of claim 1, wherein:

the bundle of optical fibers is shaped to define a first angle between the first end plane and the first section plane;

the bundle of optical fibers is shaped to further define a second angle between the second end plane and the second section plane;

the first angle renders the apparatus capable of compressing in a first image direction an optical image impinging on the first end into an optical image in the bundle of optical fibers at the first section plane;

the second angle renders the apparatus capable of expanding in a second image direction an optical image from the bundle of optical fibers at the second section plane into an optical image emitting from the second end; and

the second image direction is transverse to the first image direction.

3. The apparatus of claim 2, wherein the compression in the first image direction is between 10:1 and $m:1$, where $1 < m < 10$.

4. The apparatus of claim 2, wherein the compression in the first image direction is between 4:1 and 1.5:1.

5. The apparatus of claim 2, wherein the compression in the first image direction is 4:1.

6. The apparatus of claim 2, wherein the expansion in the second image direction is between 1:10 and 1:n, where $1 < n < 10$.

7. The apparatus of claim 2, wherein the expansion in the second image direction is between 1:4 and 1:1.5.

8. The apparatus of claim 2, wherein the expansion in the second image direction is 1:4.

9. The apparatus of claim 1, wherein:
the first end plane intersects the second section plane at a first line;
the second end plane intersects the second section plane at a second line; and
the first line is transverse to the second line.

10. The apparatus of claim 1, wherein:
the first end plane intersects the second section plane at a first line;
the second end plane intersects the second section plane at a second line; and
the first line is perpendicular to the second line.

11. The apparatus of claim 1, wherein the first fiber direction and the second fiber direction are co-parallel.

12. The apparatus of claim 1, wherein the sensor is a time delay and integrate sensor.

13. The apparatus of claim 1, further comprising a scintillator disposed in a confronting relation with the first end.

14. The apparatus of claim 13, wherein the first fiber direction and the second fiber direction are co-parallel.

15. The apparatus of claim 13, wherein the sensor is a time delay and integrate sensor.

16. The apparatus of claim 1, further comprising a radiation source disposed in a confronting relation with the first end of the bundle of optical fibers.

17. The apparatus of claim 16, further comprising a scintillator disposed in a confronting relation with the first end of the bundle of optical fibers, wherein the radiation source is an x-ray source.

18. The apparatus of claim 16, wherein:

the sensor is a time delay and integrate sensor with a sensor control;

and

the sensor control is capable of operating the sensor to image an article disposed between the radiation source and the first end of the bundle of optical fibers that is moving relative and transverse to a radiation axis between the radiation source and the first end of the bundle of optical fibers.

19. The apparatus of claim 18, further comprising a scintillator disposed in a confronting relation with the first end of the bundle of optical fibers, wherein the radiation source is an x-ray source.

20. The apparatus of claim 18, wherein the time delay and integrate sensor is a CCD photodiode array.

21. An apparatus, comprising a sensor and a bundle of optical fibers, wherein:

the bundle of optical fibers is capable of morphing a first format at a first end into a second format at a second end;

the first end is non-normal to a first fiber direction at the first end;

the second end is non-normal to a second fiber direction at the second

end; and

the sensor is disposed in a confronting relation with the second end.

22. The apparatus of claim 21, characterized in that when the compression ratio equals the expansion ratio, the area of the first format equals the area of the second format, but shape of the first format and the shape of the second format are different.

23. The apparatus of claim 21, wherein the first end defines a first end plane and the second end defines a second end plane which is obliquely oriented with respect to the first end plane.

24. The apparatus of claim 21, wherein the sensor is a time delay and integrate sensor.

25. The apparatus of claim 21, further comprising a scintillator disposed in a confronting relation with the first end.

26. An apparatus, comprising a scintillator, a time delay and integrate sensor, and an interadjacent bundle of optical fibers, wherein the bundle of optical fibers includes first and second ends finished along planes so that the apparatus is capable of morphing a first format at a first end into a second format at a second end.

27. The apparatus of claim 26, wherein:
the first end is non-normal to a fiber direction at the first end; and
the second end is non-normal to a fiber direction at the second end.

28. The apparatus of claim 26, wherein the first end is defined by a first end plane and the second end is defined by a second end plane which is obliquely oriented with respect to the first end plane.

29. An apparatus, comprising:
a radiation generator for generating incident radiation;
a scintillator disposed in a confronting relation with the radiation generator and formed of a material capable of transforming the incident radiation into a visible light image;
a fiber optic bundle having a first end disposed in a confronting relation with the scintillator and finished along a plane oriented with respect to a first

end fiber direction to compress the visible light image in a first image direction, the fiber optic bundle also having a second end finished along another plane oriented with respect to a second fiber direction to expand the visible light image in a second image direction, and the fiber optic bundle further having a transmitting region disposed between the first end and the second end;

a time delay and integrate sensor disposed in confronting relation with the second end; and

a display coupled to the time delay and integrate sensor.

30. The apparatus of claim 29, wherein the first image direction is transverse to the second image direction.

31. The apparatus of claim 29, wherein the first image direction is orthogonal to the second image direction.

32. The apparatus of claim 29, wherein:

the first end defines a first end plane;

the second end defines a second end plane; and

the second end plane is oblique with respect to the first end plane.

33. A method, comprising the steps of:

compressing visible light image in a first image direction;

expanding the visible light image in a second image direction; and

converting the visible light image to an electronic image.

34. The method of claim 33, further comprising the steps of:

directing incident radiation from a radiation generator through and around an object to form processed radiation; and

transforming the processed radiation into the visible light image.

35. The method of claim 33, further comprising the step of displaying the electronic image.

36. The method of claim 33, wherein the first image direction is transverse to the second image direction.